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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,432	01/22/2004	Fumio Kawamura	62807-157	3195

7590 05/19/2006
MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

FIORITO, JAMES

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/761,432	Applicant(s) KAWAMURA ET AL.	
	Examiner James A. Fiorito	Art Unit 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10, and 12-14 is/are rejected.
- 7) ☒ Claim(s) 8,9 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/22/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed "Nuclear Chemical Engineering (separate volume IV) Chemical Engineering for Fuel Reprocessing and Radioactive Wastes Management" and "Nuclear power industry (Gensiryoku-Kogyo)" fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claimed uranyl fluoride of claim 8 is not a further limitation of the uranium fluoride in claim 7.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for uranium oxyfluoride or uranyl fluoride, does not reasonably provide enablement for uranium fluoride. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to apply uranium fluoride to the invention commensurate in scope with these claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukasawa '762 in view Golliher '568.

Fukasawa discloses a method for spent nuclear fuel reprocessing, which comprises a fluorination step of applying fluorine to spent nuclear fuel powder to cause volatilization (Paragraph 8 and 22). Paragraph 8 teaches that plutonium can be volatilized along with uranium from the nuclear fuel powder.

Fukasawa does not teach a removal step of removing a plutonium fluoride from fluorides volatilized in the foregoing fluorination step.

Golliher teaches a removal step of removing a plutonium fluoride from fluorides volatilized in a fluorination step (Column 1-2). Fukasawa and Golliher are analogous art

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because they are from the same field of endeavor, namely Uranium and Plutonium treatment processes.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to form the fluorination step disclosed by Fukasawa in paragraph 8 and 22, to further include a removal step of removing a plutonium fluoride from fluorides volatilized in a fluorination step in view of the teaching of Golliher. The suggestion or motivation for doing so would have been to separate the uranium fluoride from the plutonium fluoride (Golliher, Column 1-2).

Fukasawa in view of Golliher does not expressly state that the fluorination step is carried out in a flame furnace. However, it would have been obvious to use a flame furnace in the fluorination step to provide the appropriate reaction conditions to the process.

Claim 2-3, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukasawa '762 in view Golliher '568 as applied to claims 1, and 4-6 above, and further in view of Anastasia '920.

Fukasawa in view of Golliher discloses a method for spent nuclear fuel reprocessing, which comprises a fluorination step of applying fluorine to spent nuclear fuel powder obtained through decladding of spent nuclear fuel to cause volatilization (Fukasawa, Paragraph 8 and 22), a fixation step of fixing a plutonium fluoride among fluorides volatilized in the foregoing fluorination step, a step of refining a uranium fluoride, a removal step of removing the aforementioned fixed plutonium fluoride, a re-

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fluorination step of applying fluorine to the removed plutonium fluoride to cause re-fluorination (Golliher, Column 1-2).

Fukasawa in view of Golliher does not expressly disclose a gas phase hydrolysis step of applying water vapor and hydrogen to the gaseous plutonium fluoride obtained through re-fluorination in the re-fluorination step, thereby converting the fluoride into its oxide.

Anastasia discloses a gas phase hydrolysis step of applying water vapor and hydrogen to the gaseous plutonium fluoride obtained through re-fluorination in the re-fluorination step, thereby converting the fluoride into its oxide (Claim 1, Column 13).

Fukasawa, Golliher and Anastasia are analogous art because they are from the same field of endeavor, namely Uranium and Plutonium treatment processes.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to form the fluorination step disclosed by Fukasawa in view of Golliher, to further include a gas phase hydrolysis step of applying water vapor and hydrogen to the gaseous plutonium fluoride obtained through re-fluorination in the re-fluorination step, thereby converting the fluoride into its oxide, in view of the teaching of Anastasia. The suggestion or motivation for doing so would have been to make the uranium oxide and plutonium oxide for reuse as nuclear fuel (Anastasia, Claim 1, Column 13).

Regarding claim 12, Fukasawa in view of Golliher and Anastasia does not teach the oxide particle obtained in the foregoing gas phase hydrolysis step is filled in a cladding tube without a granulation of the oxide particle. However, it would have been

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obvious to fill a cladding tube without a granulation of the oxide particle, since the elimination of a granulating step would make the process less expensive.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukasawa in view of Golliher and Anastasia as applied to claims 1-6 and 12-14 above, and further in view of Caranoni '002.

Fukasawa in view of Golliher and Anastasia does not teach a granulation step of forming the oxide powder or particle obtained in the foregoing oxidative conversion step into a granule.

Caranoni teaches a granulation step of forming the oxide powder or particle obtained in the foregoing oxidative conversion step into a granule (Paragraph 4). Fukasawa, Golliher, Anastasia and Caranoni are analogous art because they are from the same field of endeavor, namely Uranium and Plutonium treatment processes.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to form the fluorination step disclosed by Fukasawa in view of Golliher and Anastasia, to further include a granulation step of forming the oxide powder or particle obtained in the foregoing oxidative conversion step into a granule in view of the teaching of Caranoni. The suggestion or motivation for doing so would have been to make uranium oxide and plutonium oxide for reuse as nuclear fuel in the form of pellets (Caranoni, Paragraph 4).

Allowable Subject Matter

Claim 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 8-9, and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on 9am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

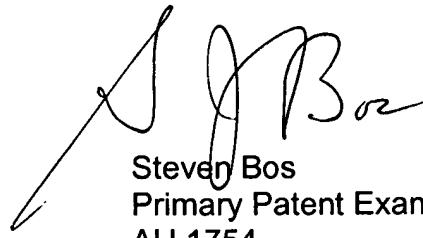
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James Fiorito
Patent Examiner
AU 1754

JF

A handwritten signature in black ink, appearing to read 'SJB' with a flourish at the end.

Steven Bos
Primary Patent Examiner
AU 1754